August 3, 2006

CHAIR CROSBY
VICE CHAIR WILLIAMS
Academic Senate

Dear Faye and Quentin:

Re: Response to July 14, 2006 letter from the Academic Senate

I write in response to your letter of 7/14/06 concerning the LRDP/EIR process. The attached document provides responses to the comments raised in your 7/14/06 and December 2, 2005 letters. The campus intends to include responses to the Academic Senate's comment letters in the Final EIR.

It is my intention to recommend to Acting Chancellor Blumenthal that the UCSC campus adopt the alternative enrollment scenario of 19,500 and seek approval of the LRDP/EIR at the September meeting of the Regents. My decision to make this recommendation results from long and careful evaluation of the academic, budgetary and political issues that required consideration.

As you know, I consulted with the Senate regarding the enrollment maximum of 21,000 versus the alternative of 19,500. The recommendation from the Senate Executive Committee stated the following: "SEC regards the lowered goal of 19,500 to be acceptable, but only if this number will allow the campus to achieve its goal of 15% graduate students, if it leaves room for the development of one or more professional schools, and if it allows us to meet our Master Plan obligations to the State." I believe that the alternative number of 19,500 will provide us with the ability to further expand graduate education and establish professional programs. Further I believe this decision is responsive to the concerns raised by the city and the campus community regarding the impact of growth. Our task will be to balance the desire for further development of our academic programs against the need to be attentive to the community's desire that the impacts of growth be mitigated to the greatest extent possible.

There are benefits in moving forward with the LRDP submission now, and there are risks to delay. I am persuaded that the benefits outweigh the risks:

- If we don't move forward, we are most likely to move backward. I am seeing an increasing number of senior faculty entertaining offers from other institutions that have the ability to offer lucrative packages that include opportunities to build new programs and build new facilities. We must remain competitive in order to recruit and retain excellent faculty. An approved LRDP will insure that we retain the ability to create new opportunities, a factor I believe is critical to our success.

- The cost of producing the proposed LRDP has already exceeded $5 million. Keeping to the planned timeline will assist in avoiding further costs to the campus that would most likely result if submission is delayed.

- Maintaining momentum in our capital program will help to constrain future construction costs. Any delay in capital projects results in increased costs due to the rapidly escalating cost of construction.

- An approved LRDP will expedite our ability to develop a Master Housing Plan for the campus.

- Moving forward is critical to our ability to maintain momentum and launch our planned fund-raising campaign.

I appreciate the Senate's full engagement in the LRDP/EIR process. The campus administration has worked hard to be responsive to the April resolution and to subsequent requests for information. I do hope that you will agree that we have been and continue to be responsive to the concerns of the Senate, and in doing so have demonstrated our mutual commitment to shared governance.

Consistent with the Senate resolution I now ask you, as delegates of the SEC, to review the materials provided and determine whether the Senate will endorse submission of the LRDP/EIR for review at the September meeting of the Regents. I ask that you provide your response in writing to Acting Chancellor Blumenthal by August 31, 2006 so that he may consider this within the context of my recommendation before reaching a final decision.

Sincerely,

David S. Kliger
Campus Provost and
Executive Vice Chancellor

Enclosure

cc: Acting Chancellor Blumenthal
Vice Chancellors
Deans
Vice Provosts

PROPOSED RESPONSE TO COMMENT LETTER OPA-1

Response to Comment OPA-1-1. In developing the estimate of additional faculty and staff housing that would be needed by 2020 in order to meet the on-campus housing targets, the 84 housing units approved under the Ranch View Terrace Project were included in the existing employee housing inventory; that is, because the project has been approved and is scheduled to begin construction, these units are assumed, in the analysis, to have been constructed. Construction on this project is slated to begin in summer 2006. The purpose of the EIR is to provide environmental review of the full number of units that are provided for in the LRDP so that they can be built as warranted by demand, and as allowed by funding and other considerations. On-campus housing is developed in response to demand and there is demonstrated demand for housing, especially by faculty and staff.

The University acknowledges that the relative cost of student housing on the campus is higher than the cost of housing in the City of Santa Cruz. However, because very limited housing growth (1,684 housing units according to AMBAG estimates) is projected in the City between 2005 and 2020, the availability of housing in the City will be extremely limited in the future. In light of the limited supply off-campus, students will be willing to pay higher rents for on-campus housing, and there would be a demand for at least the number of student beds provided for in the 2005 LRDP. Because there will be ample demand, it is reasonable to expect that the on-campus student housing projected in the LRDP EIR will be built during the next 15 years.

With respect to employee housing, new on-campus housing has always been offered to faculty and staff at below market rates. This practice would continue in the future, and will make the on-campus housing relatively more affordable compared to similar new housing in the City of Santa Cruz, especially in the City's west side. Because of below market prices, and other factors including desire to live close to work, it is expected that on-campus employee housing will continue to be in high demand in the future. In light of the demand, it is reasonable to expect that the on-campus employee housing projected in the LRDP EIR will be built during the next 15 years.

Housing is a component of the proposed project, not a mitigation measure. For a discussion of various alternatives to the proposed project, including more on-campus housing, please see Chapter 5 of the Draft EIR.

A response to the comment regarding phasing of on-campus housing is being developed.

Response to Comment OPA-1-2. The analysis in the EIR is based on the BAE housing impact analysis, which is presented in a memorandum dated September 30, 2005. This memorandum is available for public review at UC Santa Cruz and will be included as part of the administrative record for this EIR.

It is impossible to predict with certainty future incomes and housing prices, and such forecasting is not a CEQA requirement. However, as a reasonable means of estimating

future housing affordability levels, the BAE analysis utilizes 2005 for-sale and rental housing market data, UC Santa Cruz employee household income levels, and actual rents paid by UC Santa Cruz students. The sources of these data are documented in the BAE memorandum. The BAE analysis assumes that the distribution of rents and home prices will remain constant over time relative to income levels for students and employees. This approach provides a reasonable estimate of affordability because it is distributional and relies on relationships between incomes (which rise over time) and housing prices (which rise, flatten, and can fall over time).

The assumptions used by BAE regarding affordability, and the terms of mortgages underlying those assumptions, are very conservative, leading to a possible over-estimating in today's market regarding affordability impacts. To translate UC Santa Cruz employee household incomes into housing affordability levels, BAE assumed a maximum down payment of five percent and maximum total housing costs, including mortgage, tax, and insurance payments, of no more than 35 percent of income. If the analysis made more aggressive assumptions (which more closely reflect current market trends), "affordability" levels could be shifted upwards and the residual demand number would shift downwards. For these reasons, the housing analysis is also very conservative. See also Response to Comment OPA-1-3 below.

BAE is conducting an evaluation of the number of new households (both LRDP-related and non-university households) that would be able to find affordable housing within the study area in 2020. That evaluation will be presented in the Final EIR.

Response to Comment OPA-1-3. BAE has examined Appendix C and has not found any arithmetic errors. Below is a further explanation of the methodology used in the Appendix, which may be helpful in elucidating assumptions on which the calculations were based.

Calculations of expressed demand in Appendix C-2 are based on the assumption that, when a UC Santa Cruz employee household finds an affordable house in the Primary Market Area, it purchases this house. As an example, based on the current distribution of household incomes among UC Santa Cruz employee households, Appendix C-2 reports there will be 21 new UC Santa Cruz households able to afford housing costing $785,000 or less. Based on current housing market data and AMBAG forecasts, Appendix C-2 presents an estimate that only 286 of a total of 842 new housing units in the Primary Market Area will <u>not</u> be affordable to this cohort of households. The remainder, 556 housing units (842 total units minus 286 unaffordable units), will be affordable to this cohort. Consequently, all 21 new UC Santa Cruz households in this cohort will be able to purchase a house; expressed demand for this cohort is shown in Appendix C-2 as 21 households. Looking at another cohort, 63 new UC Santa Cruz households are estimated to be able to afford a house costing $550,000 or less. According to Appendix C-2, 177 new units will be built that are affordable to members of this cohort as shown below:

Housing Price Range (Constant 2005 $) [1]	Estimated Unit Production 2005-2020
$115,001 to $155,000	8
$155,001 to $195,000	8
$195,001 to $235,000	8
$235,001 to $275,000	17
$275,001 to $315,000	17
$315,001 to $395,000	17
$395,001 to $470,000	51
$470,001 to $550,000	51
Units Produced Costing $550,000 or Less	**177**

[1] The housing price distribution in this table is not intended to be a projection of actual housing prices in the future. Please see Response to Comment OPA-1-2, which explains why BAE held both the cost of housing and incomes constant at 2005 levels.

With 177 new houses available, all 63 households in this cohort will be able to purchase a house, and expressed demand for this cohort is shown as 63 households. According to the methodology used in Appendix C-2, houses purchased by this cohort include all 51 houses within the $470,001 to $550,000 price range, and 12 houses within the $395,001 to $470,000 price range. As a consequence, 114 houses (177 minus 63) are available to the next cohort, which is comprised of households able to afford houses costing $470,000 or less. This process ripples downward through the housing market. As a consequence, Appendix C-2 shows that 115 new UC Santa Cruz households will be able to afford a housing unit costing $155,000 or less. Members of this cohort will be unable to find a home for purchase, because higher income households will have purchased all the available units.

Response to Comment OPA-1-4. Scenarios 1 and 2 present the range of likely population and housing impacts that would occur as a result of the 2005 LRDP. The Draft EIR (page 4.11-16) explains how Scenario 2 differs from Scenario 1, and why Scenario 1 is the worst-case scenario. Text has been added as shown below to page 4.11-16 explaining that Scenario 2 is not conservative as it does not take into account the backfilling of jobs.

> **"Scenario 2.** The second scenario assumes that 68.6 percent of the new employees would be hired from within the county and 31.4 percent of the new hires would be from out-of-county areas. These percentages are based on an analysis of 10 years of campus hiring data (academic year 1991-92 through 2003-04), which shows that between 31 and 34 percent of the new employees hired during these years were hired from outside the county and the rest were hired from within the county (UCSC 2005). This scenario is not conservative as it does not take into account the backfilling of some of the jobs that would be vacated when the persons holding those jobs would be hired by the University, and the associated influx of non-local population in response to the backfilling of the jobs."

Response to Comment OPA-1-5. The discrepancy in traffic volumes between the two successive intersections identified in the comment is not related to how the AMBAG model was used. The model was used to derive an annual growth rate to reflect non-campus related growth in Santa Cruz. This growth rate was then applied to the existing

traffic counts in order to project future conditions. If there are discrepancies between successive intersections, they would be due to discrepancies in existing traffic counts. Since the year 2020 projections are derived by applying a growth factor to existing traffic counts, discrepancies in the traffic counts can be carried into the future projections.

With respect to the discrepancy pointed out by the commenter between Intersections # 1 and 2, a review of the traffic volumes found that the orientation of the volumes shown in Figure 14-4.9a at intersection #1 (Year 2020 Without Project Volumes at Glenn Coolidge Drive/Campus Facilities) were transposed in the creation of the graphics (e.g., northbound should be southbound and eastbound should be westbound). This transposition magnified the discrepancy between the two study intersections. Additionally, the review found that the volumes shown at intersection #2 (Glenn Coolidge Drive/Hagar Drive) are incorrect. Both the 2020 Without Project and 2020 Plus Project volumes at intersection #2 portray an earlier option developed for the 2020 Plus Project scenario.[1] The volumes for both scenarios have been corrected (including the discrepancies between the two adjacent intersections), and the intersections have been re-evaluated with the following results:

Revisions to Intersection Levels of Service for On-Campus Intersections

	AM Peak Hour		**PM Peak Hour**	
Intersection	**Average Controlled Delay (sec/veh)**	**Level of Service**	**Average Controlled Delay (sec/veh)**	**Level of Service**
Year 2020 Without Project Conditions				
#1 Glenn Coolidge/Campus Facilities	9.4	A	8.8	A
#2 Glenn Coolidge/Hagar	13.9	B	23.6	C
#3 Hagar/East Remote Lot	10.7	A	22.7	C
Year 2020 Plus Project Conditions				
#1 Glenn Coolidge/Campus Facilities	19.2	B	15.2	B
#2 Glenn Coolidge/Hagar	15.9	B	32.9	C
#3 Hagar/East Remote Lot	9.4	A	11.8	B
#4 Glenn Coolidge/East Remote Lot	12.3	B	15.9	C

The re-evaluation shows that the study intersections would operate at a LOS C or better in all periods for both scenarios. Therefore, the changes in traffic volumes under both scenarios do not change the conclusions of the Draft EIR—the impacts at the on-campus

[1] Two options for the Hagar Drive-Glenn Coolidge Drive connector were studied for the 2020 Plus Project scenario. One option was to restrict the connector as a one-way connection from Hagar to Glenn Coolidge, creating a one-way circulation pattern on Hagar and Glenn Coolidge Drives. The second option was to permit two-way travel on the connector allowing in and out access from both Hagar and Glenn Coolidge Drives. The first option was not explored further and was not included in the EIR.

intersections remain less than significant. The intersection level of service worksheets showing the correct traffic volumes are presented in Appendix XX of the Final EIR.

In addition to the two intersections discussed above, traffic volumes at other study intersections were reviewed to determine if there were any significant discrepancies between adjacent intersections. Traffic typically fluctuates from day to day, and because traffic counts are conducted over a series of days, variations between intersections are expected. As a general rule, a variation of plus or minus 10 percent in the traffic at an intersection is considered normal. The review examined traffic volumes at successive intersections in cases where there are no traffic generators such as minor streets or driveways between the intersections. This was done for the 2020 Plus Project scenario. Discrepancies greater than 10 percent were identified at the following intersections[2]:

- #7 Mission Street / Western Drive (AM peak hour discrepancy of 19%)
- #9 Empire Grade Road / Heller Drive (AM peak hour discrepancy of 13%, PM peak hour discrepancy of 23%)
- #11 Bay Street / Iowa Drive / Nobel Drive (AM peak hour discrepancy of 25%)
- #12 Bay Street / Escalona Drive (PM peak hour discrepancy of 11%)
- #21 State Route 1 / River Street (PM peak hour discrepancy of 12%)

Where there was a discrepancy of greater than 10 percent, the volumes between the successive intersections were adjusted to eliminate any discrepancy (i.e., if the traffic departing an upstream intersection was higher than the traffic approaching a downstream intersection, the lower approach volume was adjusted upward to match the higher departure volume) and the levels of service recalculated. The table below shows the recalculated intersection levels of service. While the balancing of traffic volumes results in an increase in average controlled delay ranging from 1.7 to 61.1 seconds, the revised levels of service are the same levels of service presented in the Draft EIR. Therefore the changes in traffic volumes do not change the conclusions of the Draft EIR. The intersection level of service worksheets showing the rebalanced traffic volumes are presented in Appendix XX of the Final EIR.

Revisions to Off-Campus Intersection Levels of Service				
	AM Peak Hour		**PM Peak Hour**	
Intersection	**Average Controlled Delay (sec/veh)**	**Level of Service**	**Average Controlled Delay (sec/veh)**	**Level of Service**

[2] Where there is a discrepancy between two intersections, the traffic volume at the intersection with the lower traffic volume was increased to match the volumes at the adjacent higher volume intersection.

Year 2020 Plus Project Conditions (pre mitigation)				
#7 Mission Street / Western Drive	29.9	C	NC	NC
#9 Empire Grade Road / Heller Drive	32.5 (worst movement)	D	232.4 (worst movement)	F
#11 Bay Street / Iowa Drive / Nobel Drive	11.3	B	NC	NC
#12 Bay Street / Escalona Drive	NC	NC	12.8	B
#21 State Route 1 / River Street	NC	NC	153.0	F
NC = No change from Draft EIR				

Response to Comment OPA-1-6 and OPA-1a-6. Because the 2005 LRDP is a 15-year long range development plan, similar to a city or county general plan, the analysis in this EIR is at a programmatic level. The traffic thresholds of significance (Draft EIR Section 4.14.23 and RDEIR Section ___) require a determination of intersection levels of service and the project's contribution to total traffic volumes. Thus, in analyzing a land use plan rather than a development project, the 2000 Highway Capacity Manual (HCM) provides that (HCM page 16-26): "Planning analysis is intended for use in sizing the overall geometrics of the intersection or in identifying the general sufficiency of the capacity of an intersection……..**the level of precision inherent in the operational analysis exceeds the accuracy of the data available in a planning context**." Further, The HCM goes on to state "…the concept of planning analysis is to apply the required approximations to the input data and not to the computational procedures. For planning purposes, the only site-specific data that should be needed are the traffic volumes and number of lanes together with a minimal description of the signal design and related operating parameters." (HCM page ___).

As discussed below, the Draft EIR fully identifies the significant effects of the 2005 LRDP on study area intersections, and identifies mitigation measures that would reduce these impacts to a less-than-significant level if implemented by the responsible agencies. While the alternative analysis (HCM Method B) requested by the commenter is provided for informational purposes, it does not change the conclusions of the EIR. The comment refers to the need to conduct an operational analysis using Equation 16-12 of the HCM, which is found in methods outlined in HCM Appendix F. Appendix F provides a detailed operations analysis method that evaluates the effects of an initial queue of vehicles remaining in the period of time prior to the analysis period and breaks up the analysis of intersections into several 15-minute periods. This method is used to prepare detailed signal timing plans or intersection geometric design for development projects, and requires collection of vehicle queuing data. This method is not used for long-range planning; therefore the Draft EIR analysis does not use HCM Appendix F methodology but instead uses a nationally accepted method used in long-range planning applications. It is unclear what function a detailed analysis that includes multiple 15-minute analyses would serve in the EIR's program-level analysis of the LRDP's 15-year plan for campus growth. The analysis in the EIR serves its intended function—to identify the impacts of the LRDP compared to conditions without the LRDP growth. The level of analysis included in the Draft EIR is sufficient to (1) identify whether the project causes a

significant impact, and (2) identify the type of mitigation measure required. A more detailed level of intersection analysis will be conducted as part of the design of the mitigation measures that involve roadway improvements, and would be used to refine the geometric parameters of the improvements (e.g., length of turn bays, etc.), and develop initial signal timing or synchronization plans.

The purpose of calculating average controlled delay and level of service in environmental impact reports is to determine whether a project would potentially cause a significant impact by exceeding a pre-established threshold. The conventional HCM method (HCM Alternative A method) – based on the highest 15-minute traffic volume period of the peak hour rather than the average volume over the peak hour – is an established and nationally accepted method of determining level of service, especially in planning level documents such as the UC Santa Cruz LRDP EIR where its main function is to identify project impacts "*relative*" to conditions without the project. In fact, as identified in the Draft EIR (pp. __-__), Method A identifies the intersection in question (Mission/King/Union), as well as 10 other intersections, as being significantly affected by the project, which is one indication that the model that was used appropriately identifies impacts. The HCM Alternative Method C suggested by the commenter (Appendix F of the 2000 Highway Capacity Manual, Chapter 16) is typically not used to determine the level of service of the peak hour, but to provide more detailed operational data for determining queue lengths for turn bay design and signal timing parameters, information that is not relevant to the thresholds of significance used in the EIR. Using HCM Alternative Method C might result in a different average controlled delay, but in over-saturated conditions the significance conclusion (LOS F) would not be changed. Because the threshold of significance is based on level of service and a percent using contribution of project traffic, and because the subject intersection was found to be at LOS F and significantly adversely affected by the project, the use of HCM Alternative Method C would not provide any further information for purposes of the EIR (i.e., 202 with Project compared to 2020 without Project). Further, the comment that Equation 16-12 from HCM Alternative Method A was misapplied in the EIR analysis is incorrect; it was applied in the manner specified in the HCM.

HCM Alternative Method B, suggested by the commenter in letter OPA 1-a, evaluates a 60-minute period of time rather than the standard highest 15-minute period evaluated by the conventional HCM Alternative Method A used in the Draft EIR. The length of time in the analysis period affects the reported delay. For example, if intersection volume to capacity ratio (v/c) is greater than 1.0 (i.e., operating over capacity at LOS F), HCM Method B will estimate a longer delay than Method A because it measures the additive effects of traffic over an hour. Conversely, if the intersection volume to capacity ration is less than 1.0 (i.e., operating at LOS D or better), HCM Method B will estimate a lower delay than Method A because it does not reflect the worst 15-minute period of the peak hour. Accordingly, by using HCM Alternative Method A, the Draft EIR conservatively analyzed the impacts of the 2005 LRDP on intersection levels of service.

The table below summarizes HCM Alternative Method B at three intersections, including King/Mission, as requested by the commenter.

Estimation of Peak Hour Delay Using HCM Method B with a 60-Minute Analysis Period		
	Method B (Seconds of delay/Level of service)	
Intersection	AM	PM
Mission/King		
Existing	189/F	108/F
2020 No Project	464/F	279/F
2020 + Project	578/F	464/F
Mission/Bay		
Existing	35/D	56/E
2020 No Project	58/E	161/F
2020 + Project	99/F	354/F
Mission/Chestnut		
Existing	29/C	34/C
2020 No Project	97/F	89/F
2020 + Project	228/F	166/F

Response to Comment OPA-1-7. Section 4.14 of the Draft EIR includes extensive explanation of traffic assessment methodology and of the standards of significance used in assessing impacts. All of the information in the Draft EIR is presented in layperson terms. The level of service calculations in Appendix E are provided as documentation of the analysis, and for the use of traffic analysts who might wish to review the Draft EIR. The information that is provided uses symbols and nomenclature as defined in the HCM that are standard in the traffic engineering industry. Presenting detailed technical information in appendices, rather than in the body of the EIR, is in accordance with the CEQA Guidelines (Section 15147). The nomenclature used in the Draft EIR is defined in each section of Chapter 16 (signalized intersections) of the HCM. A copy of the HCM is available for public review at the offices of Physical Planning and Construction on the campus.

With respect to the comments regarding the AMBAG model, please note that the AMBAG model uses population, households and employment to represent land use and allocates these variables to Traffic Analysis Zones (TAZs). TAZs are geographic areas. The model does not provide specific information regarding buildings, etc., within these zones. The 2020 Without LRDP scenario assumed no change in the campus from existing conditions, meaning that the model did not include any growth in population, housing, or employment between 2020 and the model's base year of 2000 for the campus TAZs. This scenario maintains the campus at existing traffic levels, while projecting growth elsewhere in Santa Cruz.

The AMBAG model was not used to assign traffic generated by campus growth, nor was the additional population associated with the 2005 LRDP "hand coded" into the AMBAG travel demand model because such a step was not necessary for the impact analysis. Traffic that would result from 2005 LRDP population and development was manually

assigned to the street network based on a distribution pattern that was determined based in part on the student/employment distribution as included in the AMBAG model (which reflects changes in population and employment centers and its effect on student distribution), and in part on a campus database of current student/employee residences. It is important to note that traffic does not always travel between campus and home. In fact, 60 to 70 percent of the trips to and from the campus are to and from other destinations (e.g., from school to grocery store, from home to daycare center to school, etc.). The AMBAG model captures these trip linkages.

The AMBAG model distribution of existing campus trips was partly based on data provided to AMBAG by the Campus in the development of the baseline model. However, future forecasts use the model's "gravity" function to distribute trips. The gravity model function in the AMBAG model estimates the distribution of trips proportional to the number of trip ends and inversely proportional to the distance between the origin and destination zones. The gravity model has achieved universal acceptance because of its simplicity, its accuracy, and its support from the Federal Highway Administration.

In the development of the model, the distribution patterns are calibrated. This process identifies the appropriate "friction factor" that represents the reluctance or propensity of persons to travel various distances. The adjustments are made incrementally with successive iterations of the model until the trip length frequency distribution produced by the model closely matches the frequency distribution from any travel data provided to AMBAG by the Campus.

Response to Comment OPA-1-8. The cost of parking is not an issue under CEQA, which is focused on the question as to whether the project would result in inadequate parking. To the extent that closer-in parking is removed and the students and employees have to park at locations that are more distant from the campus core, that also does not represent an environmental impact and is therefore not addressed in the EIR. With respect to more persons parking off-campus in nearby neighborhoods, the Draft EIR addresses that impact (see LRDP Impact TRA-3, pages 4.14-53 and –54 of the Draft EIR).

Mitigation TRA-3B does contain a criterion for determining when implementation is required. That criterion is the utilization rate of campus parking facilities as determined annually as part of the monitoring requirement of Mitigation TRA-3B. Thus, the Campus must consider constructing new parking facilities when the average utilization rate in a particular zone is projected to exceed 90 percent of average daytime utilization. Also note that the Mitigation Monitoring Plan (MMP) will provide details on how parking capacity will be monitored and the provisions of Mitigation TRA-3B will be implemented; for example:

- The Campus will redefine parking zones on campus for consistency with the goal of concentrating parking in the perimeter of the core.
- The Campus will conduct annual parking utilization surveys on the main campus and at 2300 Delaware.
- For each specific proposed development project, the Campus will identify potential impacts on parking and demonstrate that impacts will be mitigated through parking allocation strategies or construction of new spaces.
- The Campus will construct additional parking when demand is projected to approach 90 percent.

Mitigation TRA-2B also includes a measurable criterion, which is to maintain a single-occupant mode share of 55 percent or lower. The MMP will include additional detail regarding the implementation of Mitigation TRA-2B as follows:

- The Campus will assess the effectiveness of TDM measures for main campus annually, using an effectiveness matrix that tracks the TDM programs in place, number of users, and program growth.
- The Campus will conduct a modal mix study for the main campus every two years to monitor the SOV share.
- The Campus will conduct hose counts at campus intersections twice a year.
- The Campus will conduct a transportation survey of employees at 2300 Delaware every two years to assess modal mix and commute origins.

Mitigation TRA-2B has been modified to clarify that the mitigation measure is to be implemented immediately. Some measures included in Mitigation TRA-2B are already in place, others would be implemented immediately. The Campus will commit to continue to monitor the effectiveness of TDM and seek ways to improve them. Note also that the Draft EIR includes other measures that are designed to monitor and improve transit times, pedestrian safety and movement, and campus circulation. All of these elements are expected to work together to improve traffic conditions over time. The Campus has an excellent track record of implementing effective TDM measures, and has been in the forefront of identifying ways of reducing automobile traffic.

> TRA-2B: UC Santa Cruz shall continue to implement and will expand its existing Transportation Demand Management programs with the objectives of increasing sustainable transportation modes (use of the modes other than single-occupant vehicles) above 55 percent during the planning horizon of the 2005 LRDP and

reducing peak hour traffic volumes. Potential measures that the Campus will consider for achieving this objective are listed in Table 4.14.19.

In conjunction with the approval of the 2005 LRDP, The Regents will adopt the MMP. The adoption of the MMP represents the University's commitment to implementing the mitigation measures included in the 2005 LRDP EIR.

Response to Comment OPA-1-9 and OPA-1a-9. The existing conditions evaluation in the Draft EIR identifies those on-campus areas and intersections that have a significant potential for conflict among pedestrians, bicyclists and vehicles and will be affected by the proposed project. Table 4.14-3 presents existing estimated crosswalk LOSs for pedestrians at these locations. Vehicle LOSs for Hagar Drive/McLaughlin Drive and Heller Drive/McLaughlin Drive intersections were evaluated in the Draft EIR during AM and PM peak hours. See Draft EIR, page XX. The time periods to the pedestrian LOSs relate are also presented in the Table 4.14-3 under the heading "Time". There is no threshold of significance applicable to pedestrian movement as it relates to vehicle traffic delay or pedestrian movement delay. However, the Draft EIR acknowledges on page 4.14-57 under LRDP Impact TRA-4 that the pedestrian/bicycle/motor vehicle conflicts are expected to increase at locations on campus where there are already high levels of pedestrian and bicycle movements.

Relative to vehicle delay due to pedestrian movement, LRDP Impact TRA-4 identifies this potential impact and recommends mitigation measures for adoption by the University to reduce this impact to a less-than-significant level. LRDP Mitigations TRA-4A through -4F provide a number of measures that the Campus could implement as growth increases the potential for conflicts between motorized and un-motorized traffic. Precise solutions will be determined as part of the design of any future planned projects in required project-specific CEQA environmental documentation. However, the following potential measures are presented in the discussion of LRDP Impact TRA-4 as possible solutions:

- Grade-separated pedestrian crossings could be developed in conjunction with construction of new facilities adjoining roadways in the central campus, such as new academic buildings along McLaughlin Drive, new Student Life facilities along Hagar Drive, and new parking facilities and other buildings near the Performing Arts area.
- A major pedestrian corridor could be extended through a large existing culvert beneath McLaughlin Drive immediately west of Chinquapin Drive, in conjunction with new development in the vicinity of Quarry Plaza, Colleges Nine and Ten, and the north campus lands.
- Where grade-separated pedestrian crossings are impractical, installation of channelized, signal-controlled pedestrian crossings could be considered in conjunction with development in the vicinity of transit stops at Porter/College Eight, Science Hill, Colleges Nine/Ten and the Health Center, and Cowell College/Quarry Plaza.
- Additional or other pedestrian measures could be identified and implemented over the course of time to meet changing conditions on campus and to incorporate new technologies as they are developed."

The text of Mitigation TRA-4C has been revised to require implementation solutions identified in the Draft EIR if the transit travel time between the two most widely separated colleges exceeds the time interval between class periods. See revision to 2005 LRDP EIR mitigation measures Volume IV, Chapter XX.

It is the intention of UC Santa Cruz to provide a balanced transportation system, but along streets with very high volumes of pedestrians, such as along McLaughlin Drive, pedestrian safety is paramount. Furthermore, the transportation improvements in the 2005 LRDP are intended to discourage automobile traffic through the core. Therefore, some of the measures that could be implemented prioritize pedestrian mobility and safety, along with transit efficiency, over automobile mobility. Where feasible, grade-separated pedestrian bridges may be implemented. In addition to the measures listed in the EIR, discussion during development of the LRDP identified a number of additional measures that include pedestrian channelization, traffic calming, and signalization concepts. This menu of solutions provides a high level of flexibility for the Campus to provide the appropriate solutions.

The discussion of LRDP Impact TRA-1 in the Draft EIR acknowledges that if the transportation improvements included in the 2005 LRDP to discourage automobile traffic through the core are not implemented, the congestion in the campus core will increase. To address this, pursuant to LRDP Mitigation TRA-1, the Campus will monitor two key intersections including the intersection of Hagar and McLaughlin Drive and Heller and Meyer Drive, and when signal warrants[3] are met, the Campus will install traffic signals at these intersections. These traffic signals would address the concern of vehicular delays as a result of pedestrian crossings in large numbers at these intersections. In addition, the Campus is examining the addition of another mitigation measure to monitor and mitigate vehicular delay due to pedestrian movement at other key locations identified in the Draft EIR.

Stop sign controlled intersections in the campus core cannot be studied using Chapter 16 methods, which are for signalized intersections. The Draft EIR used the appropriate methodology to evaluate the levels of service at the unsignalized intersections.

Response to Comment OPA-1-10. Please refer to Response to Comment OPA-1-7 and OPA-1-6.

[3] The State of California Department of Transportation and the Federal Highway Administration have established eleven warrants for the installation of traffic signals. Nearly every jurisdiction in the country adheres to these standards. The warrants are based on a combination of traffic volumes, delay, pedestrian volumes, and accident rates. Most public agencies will not install a traffic signal unless it meets one or more of the established warrants. The warrants are described in the California Manual of Uniform Traffic Control Devices for Streets and Highways (FHWA's MUTCD 2003 Edition as amended for use in California, January 27, 2006).

Response to Comment OPA-1-11. Mitigation measures such as installing a traffic signal or adding a turn lane are capacity-related, and are intended to increase traffic flow through an intersection. While the mitigation measure improves traffic flow in small increments of time (e.g., a 60-second signal cycle length), it does not change the traffic volume projected to use the intersection over the duration of an hour, which is the study period for the EIR. In addition, intersections are studied with full theoretical traffic demands unrestricted by effects of adjacent intersections. The practice of evaluating "full demand" is a conservative, worst-case approach, and represents conditions without any restrictions in flow from adjacent intersections. Where intersections are spaced close enough to be potentially affected by extended queuing, traffic analysts review the effects of vehicle queuing on upstream intersection operations and adjust planning level signal timing parameters accordingly. Additionally, a more detailed operational analysis will be conducted during the design stages of the improvements, particularly in the development of signal timing plans and signal interconnection, which accounts for conditions at adjacent intersections. In a program-level EIR such as the 2005 LRDP EIR, performance standards may be identified as a means of ensuring that appropriate measures are incorporated into future projects to reduce the impacts of future development consistent with the approved LRDP. Mitigation TRA-2A uses the City's level of service standards as the performance standard for traffic generated by development under the LRDP as it affects off-campus intersections. Mitigation TRA-2A requires that when future projects are proposed under the 2005 LRDP that causes the LOS at off-campus intersections to degrade to the City's identified unacceptable level (i.e., LOS D), the Campus will contribute its "fair share" towards the cost of an identified traffic improvement to reduce the impact as explained in the Draft EIR. The EIR identifies the measures in Table 4-14-18 as possible solutions to which the Campus would make a fair share contribution. It is premature at this time to conduct the analysis requested by the commenter, as LOS conditions at the identified intersections will not be known until future projects under the LRDP are proposed. For this reason, the additional analysis requested by the commenter would be speculative. However, when future development under the 2005 LRDP is proposed, additional CEQA environmental documentation will be prepared that identifies, if necessary, the specific improvements that would reduce traffic impacts to a level that meets the performance standard identified in LRDP Mitigation TRA-2A. That analysis will include the potential for the identified improvements to affect other intersections or roadways.

Response to Comment OPA-1-12. While changes in travel times due to the proposed project can be estimated, there is no standard by which the significance of the change in travel time can be evaluated. The EIR relies on the traffic impact thresholds of significance established by the City of Santa Cruz and historically used in environmental reviews. These standards, which do not include corridor travel times, are used by the City and the Campus to design traffic improvements, traffic demand management programs, and other measures to improve movement and reduce time spent traveling through intersections.

However, in response to the comment, a travel time assessment was performed to estimate the amount of delay encountered when traveling in the inbound AM peak hour

along Mission Street and Bay Street to the campus and in the outbound PM peak hour along the same route. The path assessed starts/ends at the Baskin Engineering Building on campus (intersection #5) and ends/starts at the Highway 1 / River Street intersection (#21). The estimate of travel time is the sum of 1) the running time between each intersection based on a 25 mph speed (40 mph on the segment of Empire Grade Road between Heller Drive and Bay Street), and 2) the average delay experienced by the traveler in the direction of travel (from level of service calculations). The travel time were converted to average travel speeds for each route. Travel time and average speed estimates were prepared for Existing, 2020 No Project, 2020 Plus Project, and 2020 Pus Project (Mitigated) conditions.

The total time taken for a vehicle to traverse the route in each peak hour is presented in Table 1 below. The 2000 Highway Capacity Manual Urban Streets Methodology was used to determine the Level of Service (LOS) for the route (which is based on an average speed, see Chapter 15 of the 2000 Highway Capacity Manual, Exhibit 15-2).

Based on corridor-wide average speeds, Table 1 shows that under existing conditions, the travel route using the Bay / Mission corridor operates at LOS B in the AM and PM peak hours, respectively. In the year 2020 without the Project, the corridor would operate at LOS C during both peak hours. With the project, the LOS would remain at LOS C during the AM peak hour but would degrade to LOS D in the PM peak hour. With the mitigation measures proposed in the Draft EIR, the LOS would improve to LOS B in the AM and remain at LOS D in the PM peak hours.

Response to Comment OPA-1a-13. An evaluation of economic impacts of a proposed project is not required in CEQA documents. According to the CEQA Guidelines, social and economic impacts resulting from a project shall not be treated as significant impacts on the environment. However, the Transportation and Parking Services budget projection does include services such as: on-campus transit, transportation demand management measures, construction of new parking, parking management, and traffic/parking monitoring. The campus would continue to seek extramural funding to help offset the costs of certain improvements such as intersection signalization.

Response to Comment OPA-1a-14. The following represents a preliminary process timeline for translating the recommendations of the Employee Housing Administrative Plan (EHAP) report to the development of an Employee Housing Master Plan:

Planning Process:

1.	Summer 2006	SEC review of development of draft EHAP
2.	September 19-20, 2006	2005 LRDP to Regents
3.	October 1, 2006	EHAP submitted with recommendations to EVC
4.	Fall 2006	EHAP consultation and review with SEC; SEC to provide final input on EHAP; SEC to provide final input on EHAP; EVC to accept/reject

		SEC recommendations; EVC finalizes repose to recommendations within 2 months of receiving SEC input on EHAP
5.	6-9 months after (4)	EHAP process complete

Response to Comment OPA-1a-15. The 2005 LRDP designates 73 acres as "Employee Housing" area as the potential future location of employee housing development. In addition, lands designated "Campus Resource Land" in the 2005 LRDP are also available for employee housing development with additional environmental review. See Draft EIR, Figure 3-5. At this time, there are no specific plans for the development of additional employee housing, and a specific analysis of particular sites for employee housing is therefore not possible. If and when the campus proposes to develop additional employee housing, such proposal(s) will be analyzed in site-specific CEQA documentation. As part of the EHAP process, preliminary rough comparisons of three areas identified for employee housing in the Draft 2005 LRDP will be performed.

Response to Comment OPA-1a-16. The process for evaluating potential locations for future employee housing will be performed as part of the Employee Housing Administrative Plan (EHAP) for purposes of developing a campus Employee Housing Master Plan. Should this process identify sites for employee housing not identified for employee housing in the 2005 LRDP, the campus has the option of seeking approval of an amendment to the LRDP to accommodate other potential housing sites.

Response to Comment OPA-1a-17. See Response to Comment OPA-1a-16.

Table 1
Comparison of Travel Times – Existing and 2020 Conditions (Bay/Mission Corridor)

Location	Distance (miles)	Travel Time (sec)	Existing Conditions Delay (sec)		2020 No Project Delay (sec)		2020 Plus Project Delay (sec)		2020 Plus Project (Mitigated) Delay (sec)	
			AM	PM	AM	PM	AM	PM	AM	PM
Heller Dr. (Campus Building to McLaughlin Dr.)	0.10	14.40	-	-	-	-	-	-	-	-
#5: Heller Dr. and McLaughlin Dr.	-	-	7.1	7.6	8.1	10.6	8.4	11.4	8.4	11.4
Heller Dr. (McLaughlin Dr. to Meyer Dr.)	0.38	54.72	-	-	-	-	-	-	-	-
#6: Heller Dr. and Meyer Dr.	-	-	7.8	8.3	9.7	11.2	11.0	12.9	11.0	12.9
Heller Dr. (Meyer Dr. to Empire Grade Rd.)	0.99	141.98	-	-	-	-	-	-	-	-
#9: Heller Dr. and Empire Grade Rd.	-	-	0.0	15.0	0.0	48.6	0.0	178.2	0.0	178.2
Heller Dr. (Empire Grade Rd. to Western Dr.)	0.87	78.30	-	-	-	-	-	-	-	-
#8: Empire Grade Rd. and Western Drive			-	-	-	-	-	-	9.7	7.7
Empire Grade Rd. (Western to Bay St.)	0.27	24.30	-	-	-	-	-	-	-	-
#10: Bay St. and High St./Glenn Coolidge Dr.	-	-	18.1	19.7	13.8	23.6	14.6	33.6	23.8	33.6
Bay St. (High St./Glenn Coolidge Dr. to Nobel Dr./Iowa Dr.)	0.31	44.64	-	-	-	-	-	-	-	-
#11: Bay St. and Nobel Dr./Iowa Dr.	-	-	6.3	7.2	7.4	8.4	7.1	8.8	5.7	8.8
Bay St. (Nobel Dr./Iowa Dr. to Escalona Dr.)	0.40	57.60	-	-	-	-	-	-	-	-
#12: Bay St. and Escalona Dr.	-	-	0.0	0.0	12.2	3.8	21.9	5.7	4.7	5.7
Bay St. (Escalona Dr. to King St.)	0.20	28.80	-	-	-	-	-	-	-	-
#13: Bay St. and King St.	-	-	5.2	8.3	9.0	12.0	11.5	32.6	7.5	32.6
Bay St. (King St. Mission St.)	0.19	27.36	-	-	-	-	-	-	-	-
#14: Bay St. and Mission St.	-	-	22.7	31.5	31.6	129.8	84.8	191.8	59.9	167.7
Mission St. (Bay St. to Laurel St.)	0.28	40.32	-	-	-	-	-	-	-	-
#17: Mission St. and Laurel St.	-	-	16.0	31.1	24.0	97.5	34.8	148.0	35.0	57.9
Mission St. (Laurel St. to Walnut Ave.)	0.23	33.12	-	-	-	-	-	-	-	-

Table 1
Comparison of Travel Times – Existing and 2020 Conditions (Bay/Mission Corridor)

Location	Distance (miles)	Travel Time (sec)	Existing Conditions Delay (sec)		2020 No Project Delay (sec)		2020 Plus Project Delay (sec)		2020 Plus Project (Mitigated) Delay (sec)	
			AM	PM	AM	PM	AM	PM	AM	PM
#18: Mission St. and Walnut Ave.	-	-	10.9	13.0	13.0	16.0	14.5	18.2	17.1	18.2
Mission St. (Walnut Ave. to King St./Union St.)	0.28	40.32	-	-	-	-	-	-	-	-
#19: Mission St. and King St./Union St.	-	-	2.8	36.4	187.0	131.8	229.0	199.9	12.0	110.2
Mission St. (King St./Union St. to Highway 1/Chestnut St.)	0.11	15.84	-	-	-	-	-	-	-	-
#20: Mission St. and Highway 1/Chestnut St.	-	-	8.1	25.6	73.3	76.0	123.0	108.4	54.2	95.3
Highway 1 (Mission St. to River St.)	0.59	84.96	-	-	-	-	-	-	-	-
#21: Highway 1 and River St.	-	-	26.1	42.5	29.3	103.0	39.2	128.0	41.0	108.0
Total	*5.20*	*686.66*	*131.10*	*246.20*	*418.40*	*672.30*	*599.80*	*1077.50*	*290.00*	*848.20*
Total Travel Time (seconds)		687	**818**	**933**	**1105**	**1359**	**1286**	**1764**	**977**	**1535**
Total Travel Time (minutes)		11.4	**13.6**	**15.5**	**18.4**	**22.6**	**21.4**	**29.4**	**16.3**	**25.6**
Average Speed (miles per hour)		13.6312	**22.9**	**20.1**	**16.9**	**13.8**	**14.6**	**10.6**	**19.2**	**12.2**
Level of Service (LOS)*		N/A	**B**	**B**	**C**	**C**	**C**	**D**	**B**	**D**

*Highway Capacity Manual Urban Streets Methodology

A similar travel time analysis was performed for the route that uses High Street and Mission Street to travel to and from the campus. The path assessed starts/ends at the intersection of College 9 access road and McLaughlin Drive and ends/starts at the Highway 1 / River Street intersection (#21). The path includes Hagar Drive on the campus. The total time taken for a vehicle to traverse the High Street route in each peak hour is presented in Table 2 below. Based on corridor-wide average speeds, Table 2 shows that the travel route using the High / Mission corridor in existing conditions operates at LOS B in the AM and PM peak hours. In the year 2020 without the Project, the corridor operates at LOS B in the AM peak hour and at LOS C in the PM peak hour. With the project, the LOS would decline to LOS C during the AM peak hour and to LOS D during the PM peak hour. With the mitigation measures proposed in the Draft EIR, the LOS with project would operate at LOS C in both peak hours.

Table 2
Comparison of Travel Times – Existing and 2020 Conditions (High/Mission Corridor)

Location	Distance (miles)	Outbound Travel Time (sec) bet Intersections	Inbound Travel Time (sec) bet Intersections	Existing Conditions Delay (sec)		2020 No Project Delay (sec)		2020 Plus Project Delay (sec)		2020 Plus Project (Mitigated) Delay (sec)	
				AM	PM	AM	PM	AM	PM	AM	PM
McLaughlin Dr. (College 9 Access to chinquapin Rd.)	0.12	17.28	17.28	-	-	-	-	-	-	-	-
#44: McLaughlin Dr. and Chinquapin Rd.	-	-	-	8.9	8.5	8.8	10.2	9.5	11.4	9.5	11.4
McLaughlin Dr. (Chinquapin Rd. to Hagar Dr.)	0.11	15.84	15.84	-	-	-	-	-	-	-	-
#4: McLaughlin Dr. and Hagar Dr.	-	-	-	8.5	8.4	12.2	14.8	14.4	19.6	14.4	19.6
Glenn Coolidge Dr. North to Glenn Coolidge Dr. South	1.63	146.70	146.70	-	-	-	-	-	-	-	-
#2: Glenn Coolidge Dr. and Hagar Dr.				2.4	34.1	6.5	30.2	5.2	36.1	5.2	36.1
Glenn Coolidge Dr. (Hagar Dr. to Campus Facilities)	0.25	36.00	36.00	-	-	-	-	-	-	-	-
#1: Glenn Coolidge Dr. and Campus Facilities				4.3	3.0	6.1	5.3	16.6	12.9	16.6	12.9
Glenn Coolidge Dr. (Campus Facilities to Bay St.)	0.17	24.48	24.48	-	-	-	-	-	-	-	-
#10: Bay St. and High St./Glenn Coolidge Dr.	-	-	-	16.1	18.1	15.5	19.9	18.7	25.4	18.7	25.4
High St. (Bay St. to Laurent St.)	0.63	90.72	90.72	-	-	-	-	-	-	-	-
#41: High St. and Laurent St.	-	-	-	55.1	21.8	39.3	32.1	80.8	70.7	80.8	70.7
High St. (Laurent St. to Storey St.)	0.50	72.00	72.00	-	-	-	-	-	-	-	-
#22: High St. and Storey St. **	-	-	-	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Storey St. (High Street to King St.) OUTBOUND	0.16	23.04		-	-	-	-	-	-	-	-
High St. (Highland to Storey) INBOUND	0.12		17.28								
#23: King St. and Storey St. OUTBOUND					49.8		101.7		202.0		9.4
King St. (Storey St. to Mission St.) OUTBOUND	0.10	14.40									
#19: King St. and Mission St. OUTBOUND					36.4		131.8		199.9		110.2
Mission St. (King St. to Chestnut St.) OUTBOUND	0.09	12.96									
#30: High St. and Highland Ave. INBOUND	-	-	-	33.3		66.4		116.7		116.7	
Highland St. (Mission St. to High St.) INBOUND	0.14		20.16	-	-	-	-	-	-	-	-
#20: Mission St. and Highway 1/Chestnut St.	-	-	-	8.1	25.6	73.3	76.0	123.0	108.4	54.2	95.3

Table 2
Comparison of Travel Times – Existing and 2020 Conditions (High/Mission Corridor)

Location	Distance (miles)	Outbound Travel Time (sec) bet Intersections	Inbound Travel Time (sec) bet Intersections	Existing Conditions Delay (sec)		2020 No Project Delay (sec)		2020 Plus Project Delay (sec)		2020 Plus Project (Mitigated) Delay (sec)	
				AM	PM	AM	PM	AM	PM	AM	PM
Highway 1 (Mission St. to River St.)	0.59	84.96	84.96	-	-	-	-	-	-	-	-
#21: Highway 1 and River St.	-	-	-	26.1	42.5	29.3	103.0	39.2	128.0	41.0	108.0
Total	4.61	538.38	525.42	162.80	248.20	257.40	525.00	424.10	814.40	357.10	499.00
Total Travel Time (seconds)		536	525	**688**	**787**	**783**	**1063**	**950**	**1353**	**883**	**1037**
Total Travel Time (minutes)		9.0	8.8	**11.5**	**13.1**	**13.0**	**17.7**	**15.8**	**22.5**	**14.7**	**17.3**
Average Speed (miles per hour)		15.4	15.6	**23.7**	**21.1**	**20.9**	**15.6**	**17.2**	**12.3**	**18.5**	**16.0**
Level of Service (LOS)*		N/A	N/A	**B**	**B**	**B**	**C**	**C**	**D**	**C**	**C**

*Highway Capacity Manual Urban Streets Methodology
** Note: no delay is shown for the intersection of High Street and Storey Street because it is only stop controlled in the northbound direction.